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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,137

08/07/2008

Chouki Aktouf

71247-0064

5568

22902

7590

10/05/2010

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EXAMINER

BOWERS, BRANDON

ART UNIT

PAPER NUMBER

2825

MAIL DATE

DELIVERY MODE

10/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,137	Applicant(s) AKTOUF, CHOUKI	
	Examiner BRANDON W. BOWERS	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20080912</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the application filed on 11 August 2006.

Claims 1-20 are pending.

Priority

The priority date considered for this application is 13 February 2004

Preliminary Amendment

Per Applicant's request, claims 3-5, 7-9, 11, 12, 14-16, 18 and 20 have been amended.

Objections

Specification

The priority information should be displayed on the first line of the specification.

A substitute specification including the claims is required pursuant to 37 CFR 1.125(a) because of numerous grammatical and spelling errors. For example throughout the claims and specification, characterized and synchronized are misspelled. They need to be thoroughly corrected such that grammar and spelling are consistent with current office guidelines.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject

Art Unit: 2825

matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Claims

Claims 1-20 are objected to because of the following informalities:

Characterized is consistently misspelled throughout the claims.

Claim 1 is objected to because of the following informalities:

The acronyms HDL and SCAN are used without being defined in the claim.

Delete the use of "so-called" in the claim.

Delete the quotation marks around SCAN.

Claim 3 is objected to because of the following informalities:

Synchronized is misspelled.

Claim 5 is objected to because of the following informalities:

Localizing and localization are misspelled.

Drawings

The drawings are objected to because they only show numeral labels and different geometrical shapes connected among them without displaying meaningful textual information. Without meaningful textual information embedded in the drawing, it is very difficult for one skilled in the art to understand what the drawings are intended for without searching for the related location in the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-20 are held to claim an abstract idea which is ineligible subject matter under 35 USC 101. The rationale for this finding is there is no recitation of a machine or transformation of subject matter to a different state in the claimed process of claims 1-20.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-11, and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al., "On RTL Scan Design".

In reference to claim 1, Huang teaches localization of HDL instruction sequences that will be at the origin of the memory elements during synthesis of the system in the original HDL description files (section 3, "a process is a composed of sequential statements that describe the functionality of a portion of an entity in sequential terms)

Art Unit: 2825

and insertion in at least part of HDL description files SCAN HDL instructions used to obtain at least one SCAN chain connecting the memory elements, during synthesis of the system (insertion of scan instructions in example 5).

In reference to claim 2, Huang teaches recording the new set of HDL files that include the inserted SCAN instructions (Example 5 and Figure 8, Scanned RTL design).

In reference to claim 3, Huang teaches searching for synchronized processes to detect objects assigned within these processes (Section 3, step 1, identification of clocks in a process), and identifying memory elements by any object assigned within one process and that is read in another process or in the concurrent part of the HDL code will be considered as being a memory element, in a synchronized process, any object assigned within one branch of an "if" control structure without being assigned within all other branches of this same structure is considered to be a memory element, in a synchronized process, any object that is read before it is written is considered to be a memory element (Section 3, identifying registers).

In reference to claim 4, Huang teaches identifying different clock domains to create distinct scan chains for the different domains (Section 3, identifying clocks, building scan sub-blocks for each process).

In reference to claims 7-8, Huang teaches automatically assigning values and automatically transforming types (Section 5.2, step 4, building dependency graphs)

In reference to claims 9-10, Huang teaches local and global chaining of the HDL instructions (Figure 9 and Sections 5.2, steps 5 and 8).

In reference to claim 11, Huang teaches generating intermediate switches inserted between some at least of the memory elements of a SCAN chains and a controller of these intermediate switches (Section 5.2, Step 5).

In reference to claims 15-17 drawn to a system and product made by the process of claims 1 and 11, the same rejections apply.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al, as applied to claims 1 and 16 above, and further in view of Cooke, US Patent Application Publication No. 2003/0229834. Huang teaches claims 1 and 16 are rejected above addition to inserting a test input and test output. Huang does not teach inserting a test pattern generator, a test result compression block, or a test controller. Cooke teaches a circuit including a test pattern generator, a test result compression block, a test controller and test input and output (paragraphs [0243]-[0244]) . Accordingly, it would have been obvious for one skilled in the art at the time on invention to incorporate the teaching of Cooke for a self testing circuit into the teachings of Huang for inserting self testing circuitry description instruction into an HDL file and to create said self testing circuit having the test pattern generator, a test result

Art Unit: 2825

compression block, a test controller and test input and output because it would reduce fundamental scan shifting time (Cooke, paragraph [0006]).

Claims 13-14 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al in view of Cooke, as applied to claims 12 and 18 above, and further in view of Saito et al., US Patent Application Publication No. 2001/0016862. Huang in view of Cooke teaches claims 12 and 18 are rejected above including a pseudo random pattern generator based on reconfigurable SCAN structure (Cooke, paragraphs [0243]-[0244]). It does not teach a Parallel Random Pattern Generator. Saito teaches a Parallel Random Pattern Generator (paragraph [0001]). Accordingly, it would have been obvious for one skilled in the art at the time of invention to substitute the pseudo random pattern generator with a Parallel Random Pattern Generator because it allows for different operating speeds of the generator and compression block (Saito, paragraph [0006]).

Allowable Subject Matter

Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcoming the 35 USC 101 rejection as suggested above.

The following is a statement of reasons for the indication of allowable subject matter: Prior art of record does not teach or fairly suggest analyzing or indexing of all original HDL description files and creation of at least one indexing file containing the list

Art Unit: 2825

of design units if they exist (entity, library, packet), for each object and HDL process, and all declarations for each design unit, each declaration including the line number, the object name, type, size and the associated control construction type; localizing HDL instructions that will be at the origin of memory elements during synthesis of the circuit, includes a phase to create a memory localization file comprising, for each memory element, the name of the corresponding HDL object, its type, dimension and coordinates in the original HDL description files..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON W. BOWERS whose telephone number is (571)272-1888. The examiner can normally be reached on 8:30 am until 5:00 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571)272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2825

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jack Chiang/
Supervisory Patent Examiner, Art
Unit 2825

/BWB/